

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-26 (Canceled)

27. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

a. a powder comprising particles selected from the group consisting of metals, metal alloys, metal blends, metal compounds, carbon, carbon derivatives and combinations thereof having a particle size of about 1 nanometer to about 1 micron;

b. a coating imparted to the powder particles; and

c. a heat transfer medium comprising an interpolymer prepared by polymerizing alpha-olefin monomer with vinylidene aromatic monomer and aliphatic vinylidene monomers with a volume ratio between 10:1 to 1:100 and a weight percent of 99 to 1 percent, and a polymerizable ethylenically unsaturated monomer, wherein the heat transfer medium further comprises a phase change medium selected from the group consisting of salt-hydrates, organic eutectics, clathrate-hydrates, paraffins, hydrocarbons, Fischer-Tropsch hard waxes, inorganic eutectic mixtures, acetamide, methyl fumarate, myristic acid, Glauber's salt, paraffin wax, fatty acids, methyl-esters, methyl palmitate, methyl stearate, mixtures of ~~short chain acids~~, capric and lauric acid, coconut fatty acids, propane and methane.

28. (Previously Submitted) The composition of claim 27, wherein the coating is capable of at least one of imparting corrosion resistance and acting as a dispersant.

29. (Previously Submitted) The composition of claim **28**, wherein the coating acts as a dispersant of the powder in the heat transfer medium by at least one of increasing settling time of the powder, passivating the powder, reducing interfacial tension of the powder and increases adhesion to the powder.

30. (Previously Submitted) The composition of claim **27** wherein the powder particles have an average particle size of less than 10 microns.

31. (Previously Submitted) The composition of claim **30** wherein the powder particles have an average particle size within the range of 10 nm to 2 μ .

32. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder, wherein the powder comprises comprising particles selected from the group consisting of metal, metal alloy, organic metal compounds, inorganic metal compounds, carbon and combinations thereof having an average particle size between about 1 nanometer and about 100 microns;
- b. a coating imparted to the powder particles wherein the coating is selected from the group consisting of azoles, benzotriazole, tolytriazole, halogen resistant azoles, and substituted derivatives thereof; and
- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

33. (Currently Amended) The composition of claim **32** wherein the powder is selected from the group of metals consisting of copper, titanium, nickel, beryllium, iron, silver, gold, ~~alloys thereof, blends thereof,~~ and compounds thereof.

34. (Previously Presented) The composition of claim **32** wherein the powder is selected from the group of carbons consisting of graphite, carbon nanotubes, diamond, fullerene carbons of the general formula $(C_2)_n$, where n is an integer of at least 30, and blends thereof.

35. (Currently Amended) The composition of claim 32 wherein the azole is selected from the group consisting of aromatic azoles, diazoles, triazoles, tetrazoles, benzotriazole, tolyltriazole, 2,5-(aminopentyl) benzimidazole, alkoxybenzotriazole, imidazoles, oleyl imidazoline, thiazoles, mercaptobenzothiazole, 1-phenyl-5-mercaptopetetrazole, thiodiazoles, halogen-resistant azoles, 5,6-dimethyl-benzotriazole; 5,6-diphenylbenzotriazole; 5-benzoyl-benzotriazole; 5-benzyl-benzotriazole and 5-phenyl-benzotriazole, a combination of alkoxybenzotriazole, mercaptobenzothiazole, tolyltriazole, benzotriazole, a substituted benzotriazole, and ~~or~~ 1-phenyl-5-mercaptopetetrazole, ~~a mixture of a pentane-soluble imidazoline, a pentane-soluble amide, a pyridine-based compound, a pentane-soluble dispersant, and a solvent, and combinations thereof.~~

36. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder comprising particles selected from the group consisting of metal, metal alloy, organic metal compounds, inorganic metal compounds, carbon and combinations thereof having an average particle size between about 1 nanometer and about 100 microns;
- b. a coating imparted to the powder particles, wherein the coating further comprises an inorganic corrosion inhibitor compound; and
- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

37. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder comprising carbon powder particles having an average particle size between about 1 nanometer and about 100 microns;
- b. a coating imparted to the powder particles wherein the coating further comprises a lignin-based compound, ethylene oxide/propylene oxide block copolymers, anionic surfactants, ionic surfactants and nonionic surfactants; and

- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

38. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder comprising particles selected from the group consisting of aluminum and aluminum alloys having an average particle size between about 1 nanometer and about 100 microns;
- b. a cerium compound coating imparted to the powder particles; and
- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

39. (Currently Amended) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder comprising particles selected from the group consisting of copper, silver, iron, steel and alloys thereof having an average particle size between about 1 nanometer and about 100 microns;
- b. a coating imparted to the powder particles, the coating being selected from the group consisting of mercapto-substituted thiodiazoles, amino-substituted thiodiazoles, and mercapto-substituted triazole, amino-substituted triazoles, oleyl imidazoline, triethanolamine and monoethanolamine; and
- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

40. (Previously Presented) The composition of claim 37 wherein the lignin-based compound further comprises at least one of a monovalent salt of lignin, free acid lignin, polyvalent metal salts of lignin, lignin sulfonic acid, alkali metal salts of lignin sulfonic acid, alkaline earth metal salts of lignin sulfonic acid, and ammonium salts of lignin sulfonic acid.

41. (Previously Presented) A composition having enhanced thermal conductivity, comprising, in combination:

- a. a powder comprising carbon powder particles having an average particle size between about 1 nanometer and about 100 microns;
- b. a coating imparted to the powder particles, the coating being selected from the group consisting of alkali metal salts, alkali earth metal salts, ammonium salts, and alkyl ether phosphates; and
- c. a heat transfer medium selected from the group consisting of monomers, interpolymers, polymers, and phase change materials.

42. (New) The composition of claim 27, wherein the mixtures comprise mixtures of short-chain acids.

43. (New) The composition of claim 32 wherein the powder comprises alloys of metals selected from the group consisting of copper, titanium, nickel, iron, silver and gold.

44. (New) The composition of claim 39 wherein the alloy is steel.

45. (New) The composition of claim 32 wherein the coating comprises a mixture of a pentane-soluble imidazoline, a pentane-soluble amide, a pyridine-based compound, a pentane-soluble dispersant, and a solvent, and combinations thereof.